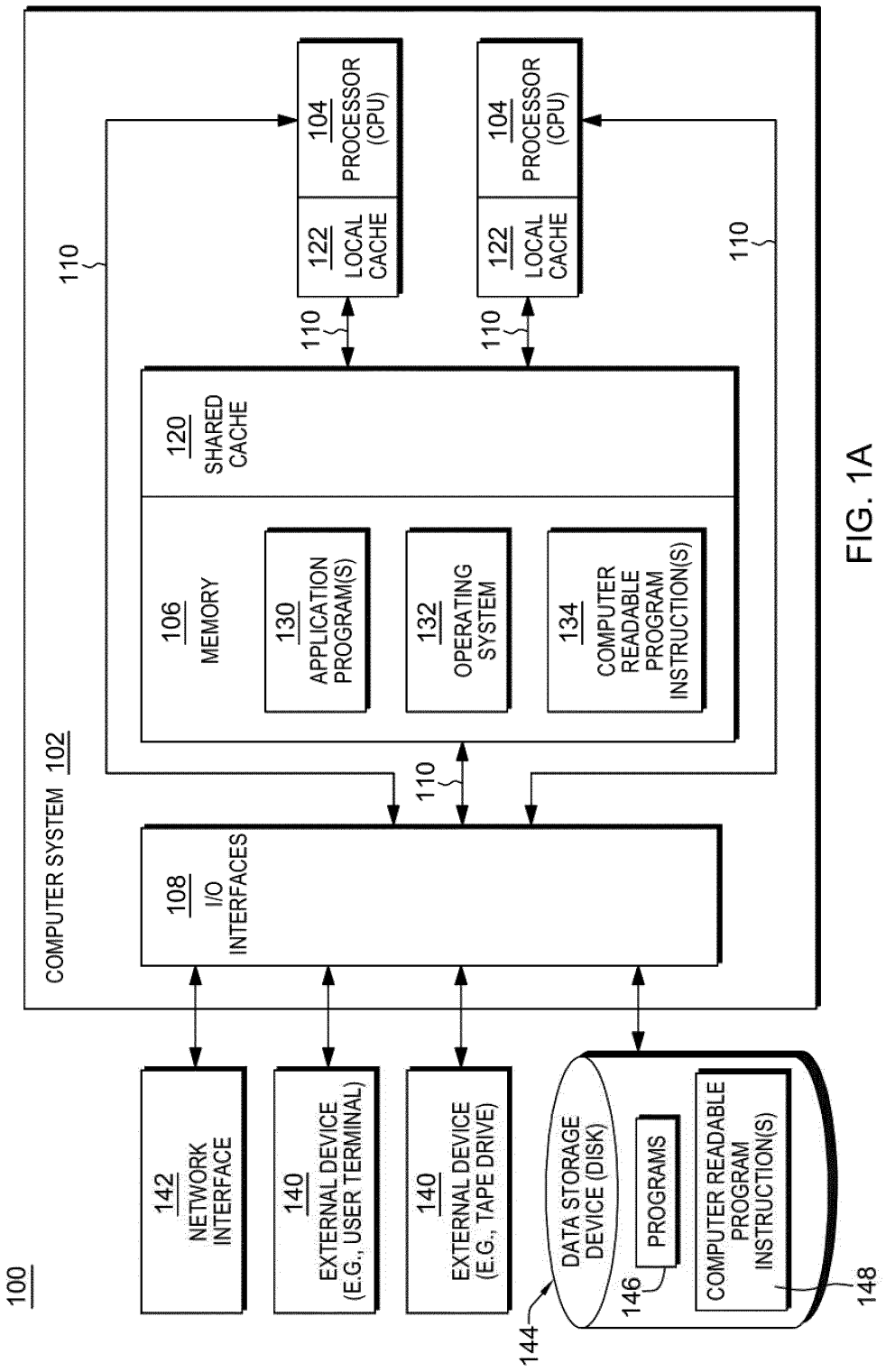

100
COMPUTER SYSTEM 102
104 PROCESSOR (CPU)
122 LOCAL CACHE
104 PROCESSOR (CPU)
122 LOCAL CACHE
110
120 SHARED CACHE
106 MEMORY
130 APPLICATION PROGRAM(S)
132 OPERATING SYSTEM
134 COMPUTER READABLE PROGRAM INSTRUCTION(S)
108 I/O INTERFACES
142 NETWORK INTERFACE
140 EXTERNAL DEVICE (E.G., USER TERMINAL)
140 EXTERNAL DEVICE (E.G., TAPE DRIVE)
DATA STORAGE DEVICE (DISK)
PROGRAMS
COMPUTER READABLE PROGRAM INSTRUCTION(S)
144
146
148

FIG. 1A

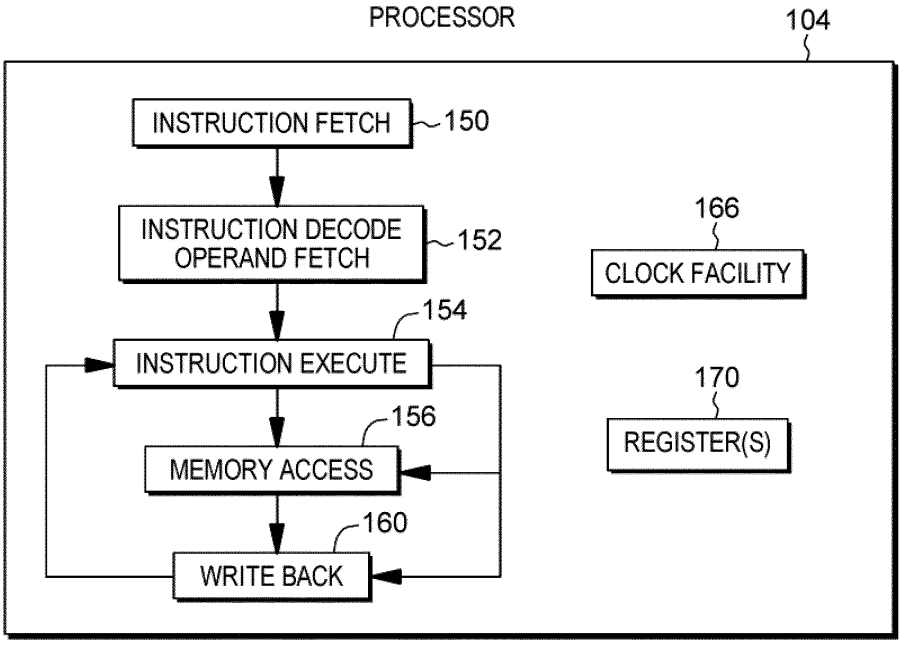

PROCESSOR
104
INSTRUCTION FETCH
150
INSTRUCTION DECODE
OPERAND FETCH
152
154
INSTRUCTION EXECUTE
156
MEMORY ACCESS
160
WRITE BACK
166
CLOCK FACILITY
170
REGISTER(S)

FIG. 1B

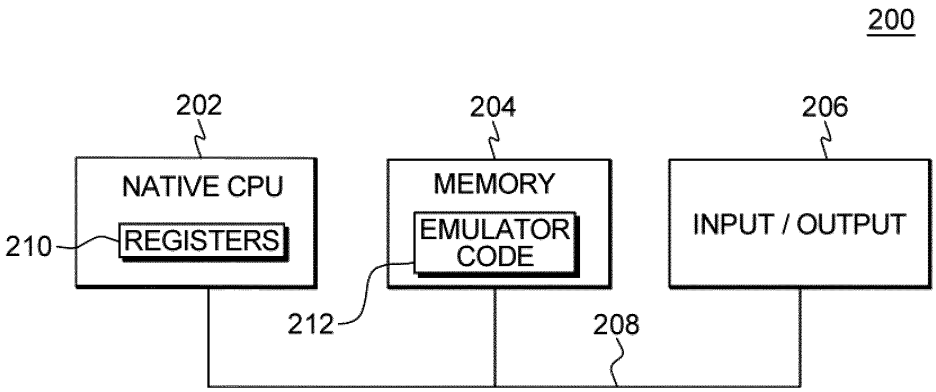

200
202
204
206
NATIVE CPU
REGISTERS
MEMORY
EMULATOR CODE
INPUT / OUTPUT
210
212
208

FIG. 2A

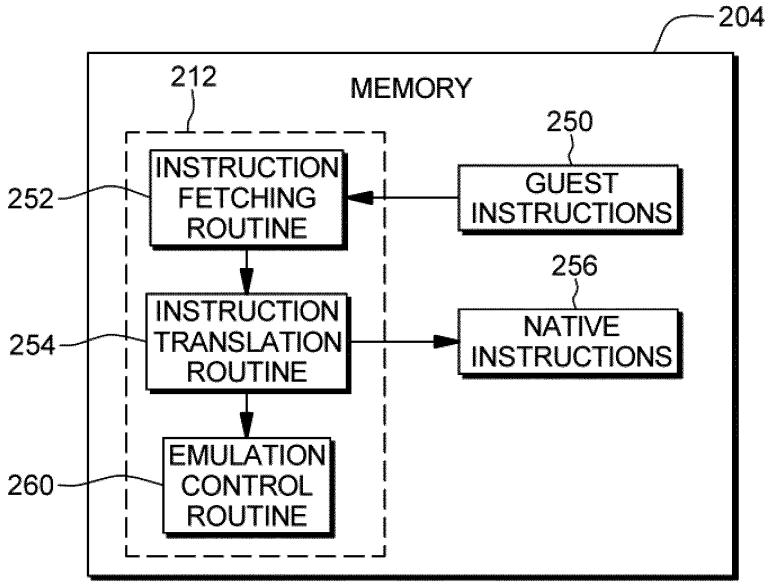

204
212
MEMORY
250
INSTRUCTION FETCHING ROUTINE
GUEST INSTRUCTIONS
252
256
INSTRUCTION TRANSLATION ROUTINE
NATIVE INSTRUCTIONS
254
EMULATION CONTROL ROUTINE
260

FIG. 2B

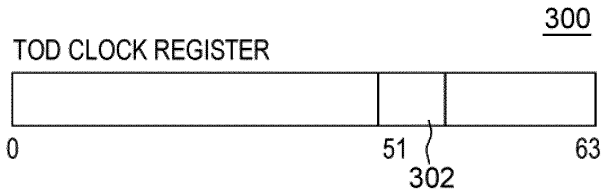


FIG. 3A

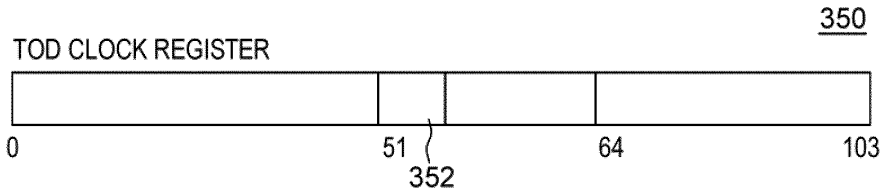


FIG. 3B

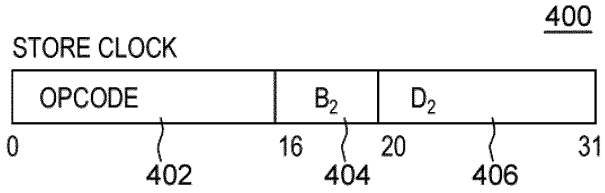


FIG. 4A

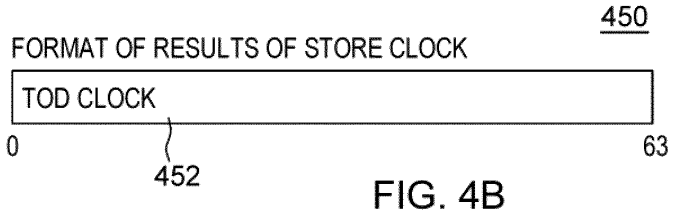


FIG. 4B

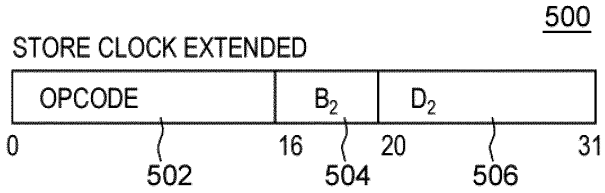


FIG. 5A

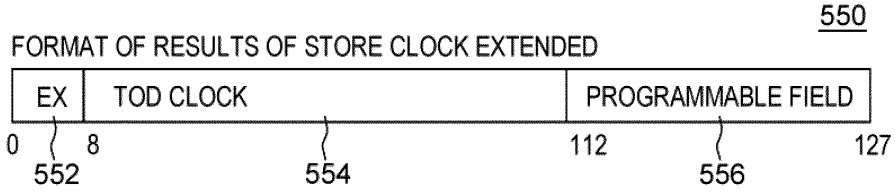


FIG. 5B

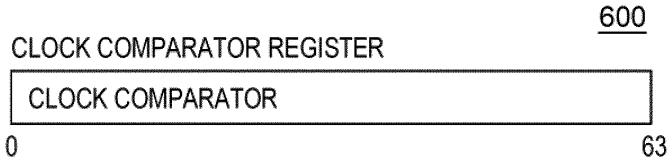


FIG. 6

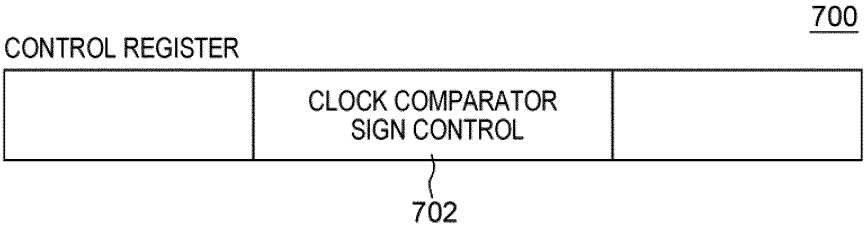


FIG. 7

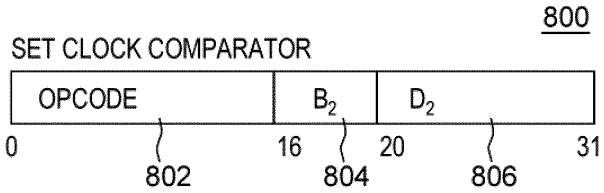


FIG. 8

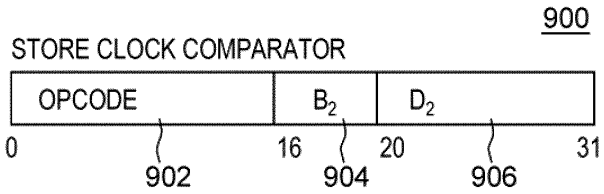


FIG. 9

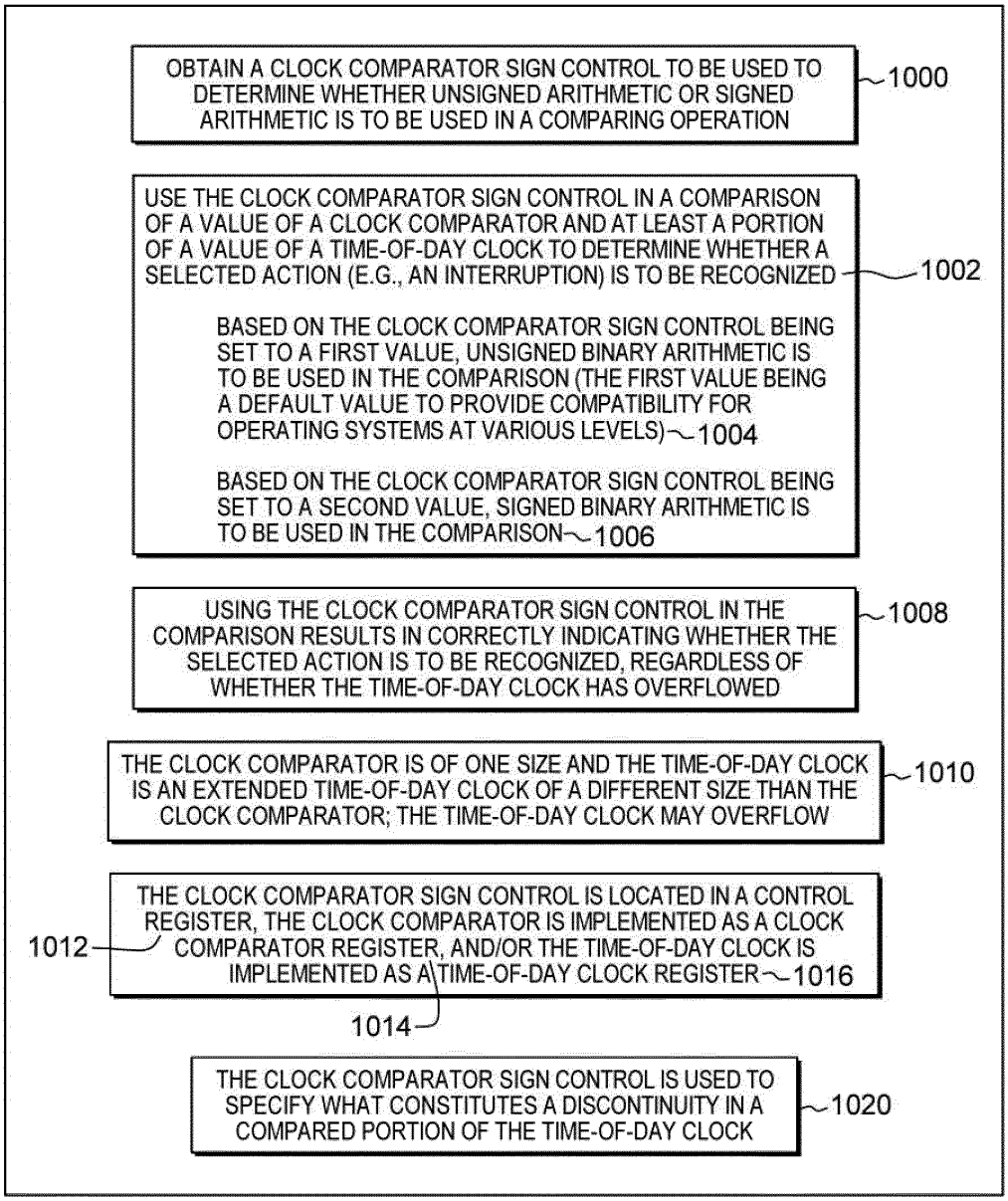

OBTAIN A CLOCK COMPARATOR SIGN CONTROL TO BE USED TO DETERMINE WHETHER UNSIGNED ARITHMETIC OR SIGNED ARITHMETIC IS TO BE USED IN A COMPARING OPERATION
1000
USE THE CLOCK COMPARATOR SIGN CONTROL IN A COMPARISON OF A VALUE OF A CLOCK COMPARATOR AND AT LEAST A PORTION OF A VALUE OF A TIME-OF-DAY CLOCK TO DETERMINE WHETHER A SELECTED ACTION (E.G., AN INTERRUPTION) IS TO BE RECOGNIZED
1002
BASED ON THE CLOCK COMPARATOR SIGN CONTROL BEING SET TO A FIRST VALUE, UNSIGNED BINARY ARITHMETIC IS TO BE USED IN THE COMPARISON (THE FIRST VALUE BEING A DEFAULT VALUE TO PROVIDE COMPATIBILITY FOR OPERATING SYSTEMS AT VARIOUS LEVELS)
1004
BASED ON THE CLOCK COMPARATOR SIGN CONTROL BEING SET TO A SECOND VALUE, SIGNED BINARY ARITHMETIC IS TO BE USED IN THE COMPARISON
1006
USING THE CLOCK COMPARATOR SIGN CONTROL IN THE COMPARISON RESULTS IN CORRECTLY INDICATING WHETHER THE SELECTED ACTION IS TO BE RECOGNIZED, REGARDLESS OF WHETHER THE TIME-OF-DAY CLOCK HAS OVERFLOWED
1008
THE CLOCK COMPARATOR IS OF ONE SIZE AND THE TIME-OF-DAY CLOCK IS AN EXTENDED TIME-OF-DAY CLOCK OF A DIFFERENT SIZE THAN THE CLOCK COMPARATOR; THE TIME-OF-DAY CLOCK MAY OVERFLOW
1010
THE CLOCK COMPARATOR SIGN CONTROL IS LOCATED IN A CONTROL REGISTER, THE CLOCK COMPARATOR IS IMPLEMENTED AS A CLOCK COMPARATOR REGISTER, AND/OR THE TIME-OF-DAY CLOCK IS IMPLEMENTED AS A TIME-OF-DAY CLOCK REGISTER
1012
1014
1016
THE CLOCK COMPARATOR SIGN CONTROL IS USED TO SPECIFY WHAT CONSTITUTES A DISCONTINUITY IN A COMPARED PORTION OF THE TIME-OF-DAY CLOCK
1020

FIG. 10